(Currently Amended) 1. A display system comprising:

a temperature sensing circuit comprising a current source connected to a temperature sensing diode for providing an input to a voltage controlled oscillator (VCO) for generating a frequency output corresponding to said input voltage as a function of a temperature measurement by said temperature sensing diode; and

a calibrating adjustable voltage connected to said VCO for inputting different controllable voltages to said VCO for accurately calibrating said temperature sensing circuit according to a proportion to absolute temperature (PTAT) correlation between said frequency generated by said VCO as a function of an absolute temperature represented in degrees of Kelvin for said temperature sensing diode to sense said absolute temperature and generate said input voltage to said VCO.

(Currently Amended) 2. The display system of claim 1 further comprising:

a resistor digital-to-analog converter (RDAC) for digitally controlling ~~a~~ said calibrating adjustable voltage inputted to said VCO in place of the temperature sensing diode for calibrating said temperature sensing circuit according to said PTAT correlation.

(Currently Amended) 3. The display system of claim 1 wherein:

said current source further connected to a multiplexing circuit for transmitting current through alternately a first and a second temperature sensing diodes having different current conducting areas for providing alternately two different input voltage to said VCO for further calibrating said temperature sensing circuit according to said PTAT correlation.
~~said temperature sensing circuit is disposed on a backplane of said display system~~.

(Currently Amended) 4. A display system comprising:

a temperature sensing ~~means~~ circuit including ~~a means~~ temperature dependent voltage circuit for controlling an oscillating circuit for generating an output frequency corresponding to a temperature measurement; and

a calibrating adjustable voltage connected to said oscillating circuit for inputting different controllable voltages to said oscillating circuit for accurately calibrating said temperature sensing circuit according to a proportion to absolute temperature (PTAT) correlation between said frequency generated by said oscillating circuit and an absolute temperature in degrees of Kelvin in generating said input voltage by said temperature sensing circuit .

(Currently Amended) 5. The display system of claim 4 wherein:

said ~~temperature sensing means~~ oscillating circuit-further comprising a voltage controlled oscillator (VCO) for alternately connecting to said temperature sensing circuit and said calibrating adjustable voltage for generating said output frequency.

(Currently Amended) 6. The display system of claim 5 wherein:

said temperature sensing ~~means~~ circuit further comprising a diode for passing a current for providing ~~an~~ a temperature dependent input voltage to said VCO according substantially to said PTAT correlation for generating said output frequency corresponding said temperature measurement.

(Currently Amended) 7. The display system of claim 4 wherein:

said temperature sensing circuit further comprising at least two diodes of different sizes having different current conducting areas for providing alternately two different input voltage to said VCO for further calibrating said temperature sensing circuit according to said PTAT correlation.

(Currently Amended) 8. The display system of claim 4 wherein:

said temperature sensing ~~means~~ circuit further comprising ~~at least two current sources~~ a current allocation multiplexer for providing ~~two~~ digitally controllable different currents.

(Currently Amended) 9. The display system of claim 4 further comprising:

a resistor digital-to-analog converter (RDAC) for digitally controlling said calibrating adjustable ~~a~~ voltage inputted to said VCO.

(Currently Amended) 10. The display system of claim 4 further comprising:

a dividing-by-n (/n) circuit where n is a positive integer number for modifying a frequency output from said VCO.

(Currently Amended) 11. The display system of claim 4 further comprising:

a dividing-by-n (/n) circuit where n is a positive integer number for modifying a frequency output from said VCO with a selectable value of n.

(Currently Amended) 12. The display system of claim 4 further comprising:

a multiplexing circuit connected between said temperature sensing circuit and said calibrating adjustable voltage wherein said multiplexing circuit controlled by a controller for controlling a calibration and temperature sensing configuration of said temperature sensing ~~means~~ circuit.

(Currently Amended) 13. The display system of claim 12 wherein:

said temperature sensing ~~means~~ circuit further comprising at least two diodes of different sizes having different current conducting areas with said multiplexing circuit connected thereto whereby said controller controlling said configuration for providing alternately two different input voltage to said VCO for further calibrating said temperature sensing circuit according to said PTAT correlation ~~by selecting either-or-both of said diodes~~.

(Currently Amended) 14. The display system of claim 12 wherein:

said temperature sensing ~~means~~ circuit further comprising ~~at least two current sources~~ a current allocation multiplexer for providing ~~two~~ digitally controllable different currents ~~having said multiplexing circuit connected thereto~~ ~~whereby~~ wherein said controller controlling said current allocation multiplexer for ~~configuration~~ ~~by~~ selecting said digitally controllable different currents ~~either-or-both of said current sources~~.

(Currently Amended) 15. The display system of claim 12 further comprising:

a resistor digital-to-analog converter (RDAC) for digitally controlling said calibrating adjustable ~~a~~ voltage inputted to said VCO ~~having~~ with said multiplexing circuit connected thereto whereby said controller controlling said ~~configuration~~ multiplexing circuit for providing digitally controlled input voltages ~~by selecting an input~~ from said RDAC to said VCO.

(Currently Amended) 16. The display system of claim 12 further comprising:

a dividing-by-n (/n) circuit where n is a positive integer number for modifying a frequency output from said VCO with a selectable value of n having said multiplexing circuit connected thereto whereby said controller controlling said configuration by selecting a value of said n.

(Currently Amended) 17. A method for measuring a temperature in a display system comprising:

disposing a temperature sensing circuit in said display system ~~on a backplane~~ with a temperature dependent voltage circuit for controlling an oscillating circuit for generating a frequency output corresponding to a temperature measurement; and .

connecting a calibrating adjustable voltage to said oscillating circuit for inputting different controllable voltages to said oscillating circuit for accurately calibrating said temperature sensing circuit according to a proportion to absolute temperature (PTAT) correlation between said frequency generated by said oscillating circuit and an absolute temperature in degrees of Kelvin in generating said input voltage by said temperature sensing circuit .

(Currently Amended) 18. The method of claim 17 wherein:

said step of disposing said temperature sensing circuit in said display system ~~on said backplane~~ further comprising a step of disposing a diode temperature sensing means on said backplane.

said ~~temperature sensing means~~ oscillating circuit-further comprising a voltage controlled oscillator (VCO) for alternately connecting to said temperature sensing circuit and said calibrating adjustable voltage for generating said output frequency.

(Currently Amended) 19. The method of claim 17 wherein:

said step of disposing said temperature sensing circuit in said display system ~~on said backplane~~ further comprising a step of disposing a first and a second temperature sensing diodes having different current conducting areas for providing alternately two different input voltages to said oscillating circuit for further calibrating said temperature sensing circuit according to said PTAT correlation ~~two diode temperature sensing means on said backplane~~.

(Currently Amended) 20. The method of claim 17 wherein:

said step of disposing temperature sensing circuit further comprising a step of ~~disposing on said backplane~~ connecting a current source to a current allocation multiplexer for providing digitally controllable different currents to said oscillating circuit ~~and a means for converting a measured current by said temperature sensing circuit to said frequency corresponding to said temperature measurement~~.

21. The method of claim 17 wherein:

said step of disposing said temperature sensing circuit in said display system ~~on said backplane~~ further comprising a step of disposing ~~on said backplane~~ in said display system a current source and a voltage control oscillator (VCO) for alternately connecting to said temperature sensing circuit and said calibrating adjustable voltage for generating said output frequency ~~for converting a measured current by said temperature sensing circuit to said frequency corresponding to said temperature measurement~~.

22. The method of claim 17 wherein:

said step of disposing said temperature sensing circuit in said display system ~~on said backplane~~ further comprising a step of connecting a resistor digital-to-analog converter (RDAC) to said oscillating circuit for digitally controlling said calibrating adjustable a voltage inputted to said oscillating circuit ~~disposing said temperature sensing circuit on a backplane of a liquid crystal microdisplay system~~.

23. A method for measuring a temperature in a display system including a temperature sensing diode for inputting a temperature dependent voltage to a voltage controlled oscillator (VCO), the method further comprising:

connecting a calibrating adjustable voltage to said VCO for inputting different controllable voltages to said VCO for accurately calibrating said temperature sensing circuit according to a proportion to absolute temperature (PTAT) correlation between said frequency generated by said VCO and an absolute temperature in degrees of Kelvin in generating said input voltage by said temperature sensing circuit.
~~applying an independent adjustable voltage source on a voltage controlled oscillator (VCO) to determine a functional correlation between a frequency of the VCO and an input voltage to the VCO.~~

(Currently Amended) 24. The method of claim 23 further comprising:

connecting a current source via a current allocation multiplexer to said VCO for providing digitally controllable different currents to said VCO.
~~applying a temperature sensing voltage from a temperature sensing diode to said VCO to generate a temperature corresponding output frequency from the VCO~~.

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25. The method of claim 24 further comprising:

connecting said current allocation multiplexer to at least two diodes of different sizes having different current conducting areas for providing alternately two different input voltage to said VCO for further calibrating said temperature sensing circuit according to said PTAT correlation.
~~using said frequency-voltage functional correlation and said output frequency of said VCO to determine said temperature sensing voltage across the temperature sensing diode~~.

26. The method of claim 25 further comprising:

digitally controlling said calibrating adjustable ~~a~~ voltage inputted to said VCO by connecting a resistor digital-to-analog converter (RDAC) to said VCO via a multiplexing circuit for said multiplexing circuit to provide digitally controlled input voltages from said RDAC to said VCO.
~~determining a temperature measurement from said temperature sensing voltage across said temperature sensing diode~~.

27. The method of claim 25 further ~~A display system~~ comprising:

connecting a dividing-by-n (/n) circuit where n is a positive integer number to an output port of said VCO for modifying a frequency output from said VCO with a selectable value of n.
~~a temperature sensing circuit disposed on a backplane wherein said temperature sensing circuit comprising at leas two diodes for measuring a same local temperature on said backplane.~~